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ABSTRACT

Persons responsible for 2-year college occupational education should take positive steps to monitor data to measure and insure the development and successful operation of their programs. The purpose of this report is to provide better understanding of techniques involved in conducting surveys. Surveys can establish: student characteristics, manpower needs and projections, accountability and financing. The nature and scope of a survey and its ultimate use depends on the characteristics of the college conducting the survey and the community it serves. When planning a survey concerning occupational education, the needs, interests, and aspirations of those to be surveyed (employer and potential employee) should be considered. It is necessary to have initial and on-going surveys to evaluate accurately enrollment potential in the overall planning process for occupational education. To insure maximum use of survey feedback, the final report can be used as a basis for a seminar for faculty, administration, advisory committee members, and potential employers. (CA)

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PROGRAM PLANNING WITH SURVEYS IN OCCUPATIONAL EDUCATION

JOHN T. HENDERSON

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PREFACE

This publication was developed by the Occupational Education Project of the American Association of Junior Colleges with the assistance of the W. K. Kellogg Foundation. The project expresses the Association's deep interest in providing guidance to Junior Colleges in the development of occupational education curricula.

The obvious need for a solid foundation of information on which to plan the development and change of occupational curricula is readily accepted by the junior college administrator.

Limited resources of time, manpower, and finances at the college tend to disallow the ideal of having all possible information available to the planning process. The college administrator must make compromise decisions between this decision and the threshold of safety in keeping with his responsibility to the student and the community.

This publication is intended to provide guidelines to assist that decision-making process and provide a better understanding of the techniques involved in conducting surveys, including the use of information readily available from other sources.

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INTRODUCTION

The two-year institution has experienced a phenomenal growth in the last decade. The burgeoning enrollment in colleges and technical schools is one of the most epochal developments in American higher education. These unique institutions, most of them publicly supported, have opened in all areas of the country, and now enroll nearly 50 per cent of all individuals entering the first year of college. Who can foretell what will happen in the 70's?

If the past is any indication of the future, the primary area of growth in these new institutions will be in occupational education. In most communities where junior colleges have been established, there has been a dearth of career programs. Their formation demands diligent information gathering and careful planning. Surveys can be a critical tool in both processes.

This publication is written as a guideline to those responsible for planning and implementing occupational programs. It will serve as a reference for chief administrative officers, deans of instruction, deans of student services, fiscal officers, and deans for career programs. Community college instructors, both technical and those teaching university parallel courses, as well as persons wanting a better understanding of occupational programs and curricula will find it valuable. It will outline how to design a survey, and how to devise the correct approach for obtaining crucial and reliable information insuring the successful development, operation, and evaluation of occupational education programs.

I WHAT SURVEYS CAN TELL YOU

State plans for the development of community colleges specify general goals the institution should fulfill, and set forth a broad array of programs and services, including occupational education, to be provided. But the detailed prospectus for career programs requires specific planning efforts based, hopefully, on information derived for that purpose. Surveying is a vital step in effectively mapping out and monitoring occupational programs. Surveys can establish:

Student Characteristics. Students are the potential work force for society. Their occupational goals, as well as personal characteristics—economic, social, and educational, are vital.

Manpower Needs and Projections. Employment in such occupational fields as agriculture, business and management, engineering and science, health, public and social service, and industrial occupations is contingent upon manpower needs and a trained, skilled work force. The community college plays a major role in matching workers and jobs.

Accountability. Surveys can yield supportive information demanded by local sponsors, state and federal agencies, private foundations, industries, and other sources of financial support. Extensive socioeconomic documentation of community characteristics is often demanded, particularly in urban areas where a diverse population is to be served. The 1968 Amendments to the Vocational Education Act of 1963, and input from state and federal programs, reveal a new emphasis on accounting for the effectiveness of vocational-technical programs.

Financing. Rapidly rising costs and faltering public acceptance of additional expenditures for higher education serve as a stimulus for careful planning prior to curriculum expansion.

The establishment of occupational programs to meet the needs of diverse populations is a difficult and complex task. The relationship between student characteristics, manpower needs and projections, institutional resources, and educational objectives in the overall planning process may be established, or clarified, by application of effective surveys. Surveys can help planners to know what programs to offer, what the curriculum should be, the duration of the coursework, and ultimately whether the program accomplished its goals.

Alternatives to Surveying

There are alternatives to procuring data through surveys. They include such esoteric methods as "flying by the seat of the pants." This, and similar approaches, are high risk at best. Numerous examples can be cited to illustrate that implementation of programs without data can result in fiasco. Expenditure of large sums for facilities and equipment have been made to set up programs for which no enrollment ensued. Students have graduated from occupational programs, and been unable to find jobs.

When faced with a proposal for a survey requiring considerable time and funds, an administrator may be inclined to retort that the need for a program is "obvious." But experience proves this response unwise. Some years ago fields such as nuclear power production looked as though they would demand great numbers of technicians. Implicitly there was a great need; actually, there was almost none.

Because many programs have been set up without the use of hard data, some administrators may rationalize that their procedures for gathering information are effective, even if they entail no more than telephoning personnel offices for vacancies. Information obtained this way has no more value than hunches. Experience indicates that decisions based on flimsy data are often poor ones resulting in wasteful expenditures exceeding the cost of the initial survey. More than one program has been instituted simply because funds were made available. The instrumentation technology programs begun a few years ago follow this pattern; it looks as though environmental and ecological education may follow the same course.

2 ORGANIZING AND CONDUCTING SURVEYS

The nature and scope of a survey and the ultimate use made of information obtained will depend on the characteristics of the college conducting the study and the community it serves. Surveys designed to obtain information for planning, operating, and evaluating technical and occupational programs should be cognizant of the following considerations:

1. *Placement Opportunities*—job openings that will be available for graduates of occupational programs
2. *Enrollment Potential*—residents of the communities the college serves are available and will enroll in the occupational programs under consideration
3. *Demographic Characteristics*—the characteristics of the population (social, economic, etc.) are consistent with the planned program
4. *College Characteristics*—the educational need is not currently being served in the same way and could best be met by this college
5. *Institutional Propriety*—the same services are not already available through another agency
6. *Faculty and Staff*—availability and qualifications must be determined
7. *Projected Program Costs*—estimates should be consonant with institutional resources and capability.

Dimensions and Design

When planning a survey, the needs, interests, and aspirations of those to be surveyed—the employer and the potential employee—should be considered. The trend in community college development is for highly diversified and comprehensive programs of occupational education. Course offerings must be developed for students who come from a wide range of cultural, educational, and sociological backgrounds. For example, one multi-campus, urban institution finds the average age of the student body is twenty-seven years and that 75 per cent of the students work full- or part-time. Many are married, requiring completion of additional education on an intermittent basis. They are highly motivated and diligently apply themselves within their time and financial constraints to pursue new educational objectives. Surveys completed as part of the total program planning process must be sensitive to the needs of young and old, men and women, the physically handicapped, the affluent, and the economically, socially, and culturally deprived.

The major task of efficient planning is to decide what information is needed, and why. The investigator should consider using a panel of individuals including students, members of advisory groups, and concerned faculty members to determine what the crucial survey questions will be. Choice of questions always precedes the overall design. Unfortunately, many surveys are developed and conducted in isolation, and data collected proves to be of little use.

Decisions about the design and administration of the survey should be made in conjunction with key groups involved in the operation and development of the college. Meaningful communication can lead to a more effective design, and better use of findings.

The Survey Plan

The best way of involving these groups is through the presentation of a formal survey plan. This plan should provide:

1. A definition of the dimensions of the survey, including such topics as the types of individuals to be surveyed, the geographical coverage of the survey, and the types of questions to be asked
2. An indication of the staffing requirements, including an identification of the specific individuals who will participate and the propor-

tion of their time which will be devoted to the project

3. An itemization of expenses involved

4. An identification of the sources of funds for the entire project

5. An indication of the ways in which the survey findings will be utilized

6. A presentation of an estimated time schedule, including an indication of the times when the services of specific individuals will be required

7. An indication of the manner in which the survey relates to the institution's priorities for development.

Careful formation of a survey proposal will produce a document that can be used to solicit outside support or gain the cooperation of interested agencies, employers, and other institutions that will be involved with the study or would be concerned with its outcome.

Comprehensive community colleges are committed to providing feasible and desirable programs once the required resources become available. Comparison of the proposal with school priorities will avoid launching study efforts when there is reason to believe it would be impossible to develop the desired programs within a reasonable period of time.

Strategy for Acquiring Information

Surveys conducted for occupational program planning will normally require the acquisition of new information. However, considerable information may be obtained from surveys previously conducted. The following list provides a number of potential data sources that are frequently used in planning postsecondary occupational programs.

SOURCE	COMMENTS
ERIC system	More than 100 occupational surveys are now listed in the index of *Research in Education,* the official ERIC publication. Investigators will find relevant and applicable survey designs by checking the ERIC files. It is available from the Government Printing Office at an annual subscription rate of $21.00.
Civic organizations	Chambers of Commerce, community action program offices, service organizations.
Federal, state, and local government agencies	Office of Economic Opportunity, U.S. Office of Education, Appalachian, Coastal Planning, New Careers, Job Corps, Job Opportunities in the Business Sector (JOBS), Neighborhood Youth Corps, Youth Employment Program (YEP), and Manpower Development Training Act (MDTA).
Industrial development interests	Banks, utilities, regional or local economic development offices, and similar groups.

In addition to the above listing, special attention should be given to labor organizations, church groups, professional organizations, area employers, and other educational institutions.

The results of any survey effort will be enhanced by the assurance that investigations carried out did not result in needless overlap. Careful review of the feedback obtained from previous studies may suggest procedures for expanding or complementing old information to meet the objectives of the new study more easily. It is particularly important to identify existing and projected programs in other institutions and agencies.

The Vocational Education Act of 1963 and the 1968 Amendments have provided extensive activities in nearly all states to expand programs of vocational and technical training for second-

ary students and adults. Many opportunities exist, particularly for publicly supported school systems, to coordinate planning for occupational programs and facilities. Planning in unison can provide a continuum of educational opportunity for area residents commensurate with their demonstrated ability and motivation at a minimum cost. Avoiding duplication will be beneficial to both the college and those seeking instruction. In cases where duplication of services may be necessary, the need for mutual efforts is intensified.

Defining the Boundaries

The size and diversity of the survey area can present major problems in attempting to limit, select, and interpret the various elements that are significant in planning. Current and projected economic conditions, demographic data such as birth rate and grouping by age, and other population factors must be determined to assure adequate planning. In addition, the manpower needs the college can reasonably expect to satisfy should be ascertained.

Less specific considerations are sometimes necessary. For example, some two-year colleges contend that occupational programs should only be developed for areas where those completing the training will have local employment opportunity. When the college and others interested in higher education contend that educational opportunity should not be provided when outmigration may occur, particularly for the younger age group, many persons in the service area of the college are denied an opportunity to develop their full potential. They frequently join the ranks of the communities' under- or unemployed. It is not unusual to learn that those who entertain this philosophy seldom raise any question about providing programs of general education, open to everyone, that can lead to what is called in many foreign countries the "educated unemployed."

The question of boundaries is especially difficult in densely populated, dynamic urban communities that reflect sharp differences in economic well being, social characteristics, political ideologies, and educational levels. The tendency for large cities to be stratified into neighborhoods with common ethnic or racial backgrounds, the extent of present opportunities for education, and the varying requirements of older citizens compared to young adults are further examples of factors that may influence the design of a survey.

In New York City, where the demand for postsecondary education far exceeds the enrollment capacity of the community colleges there, a centralized admissions office has been established. The effort to reduce problems incurred by serving an extensive, extremely diverse population by coordinating admissions outside of individual colleges has not relied on sharply defined service boundaries for each campus. Accepted applicants are sometimes directed to the college where a particular program is offered and, in other cases, to a campus where unfilled space is available.

Special Considerations

Investigators will seldom find standardized or generally applicable guidelines for determining who and what should be measured since few community colleges have gone beyond summary impressions or traditional assumptions in interpreting their service area. Two factors contributing to this confusion are the open door policy, which implies service to everyone, and the tendency of a college to identify its geographic base in terms of a legally defined district. This matter presents a number of challenges.

Considerations of manpower are not strictly economic, for instance, residents from disadvantaged backgrounds, in particular, must master certain fundamental skills before they can rea-

sonably be expected to be successful in training programs for industrial employment. The students' attitude toward work and learning are crucial and data should be obtained that will assure that the learning needs of the students are properly interpreted in terms of occupational objectives.

The rising demands for self-determination and community control, particularly among citizens in low income urban areas, make it especially important to determine the educational aspirations of the potential students. This need can be pointed out from observing that in the average Black urban area there is intense concern for redevelopment. Students from these areas will frequently have greater concern for opportunities that lead to proprietorship rather than employment in the traditional sense. In contrast, many two- and four-year colleges will foster the idea that their graduates will become employees rather than employers. Special attention to this matter is advised in collecting economic data in low income, poverty areas.

Investigating teams usually should include persons with special expertise in the curriculum area under study. There are few occupational areas that are entirely new when viewed from a national perspective, and the experience and skill of individuals familiar with the field of technical specialization will improve the design of a survey and otherwise reduce the problems inherent in completing the investigation.

Using Consultants

Outside assistance can be engaged for tasks ranging from direction of the entire project to completion of one or more phases of the investigation. Many schools may feel that drawing up a survey instrument, deciding how the raw data will be handled, or other portions of the procedure can be more effectively completed by a consultant than by local resource people (4:11-32).

Inquiries about firms or individuals available for consultancy can be directed to the various professional organizations ministering to the particular field under investigation, the American Association of Junior Colleges, state education departments, or other colleges. Continuity in the overall planning process and the ultimate value of the results from a given survey must include regular college staff on the investigating team even when the overall direction is provided by a consultant.

Survey Techniques

There is no single formula that can specify the precise method one should use in collecting information. The survey's design is critical to its success and should always be as brief and concise as possible in keeping with the information required. Remember that individuals responding to the questionnaire will resent the task if it requires too much time and energy, or if it appears that trivia is requested. Avoid asking for exact values when close approximations will suffice, and seeking information that will require extensive research on the part of respondents when this is not absolutely necessary. Optimum results from any investigation require a high percentage of responses and care should be taken to simplify the task as much as possible. A paperback publication, *Survey Research,* by Charles H. Backstrom and Gerald D. Hursh includes separate chapters covering writing the questions and designing the questionnaire (3:67-128).

Survey investigators should realize that many businesses and industries are unfamiliar with the community college and its graduates. They frequently fail to realize that graduates of two-year colleges possess job-worthy knowledge and skills, and that in addition, they have completed general education including coursework in com-

munications, social sciences, humanities, science, and mathematics.

In cases where the investigation relates to manpower determinations for technical areas essentially unknown to potential employers, it is valuable to provide descriptive information on the program as a supplement to the survey instrument. For example, hospitals have normally required staff with expertise in photography to assist in research, diagnostic investigations, and other laboratory work. Only recently have associate degree programs been available to give special training. Any survey relating to programs designed for biomedical photographers would have to be interpreted for the hospital staff.

Surveys that are directed to potential students may also be improved by providing supplemental information. Special brochures or college catalogs can create a favorable opinion with both groups.

Studies directed to employers should go beyond personnel officers and should include those in supervisory positions. If graduates of a two-year program have not previously had access to the field being surveyed, responses from employers will reflect a logical bias toward past or current hiring practices. By contacting line supervisors, the surveyor may help to inform and persuade the company that it would be to their advantage to revise hiring practices to include persons who complete short-term or regular associate degree programs of an occupational nature.

Racial discrimination is another factor that investigators must consider when seeking general manpower data. Non-White job applicants frequently are faced with discriminatory hiring practices. This can be an important issue when analyzing the need for educational programs.

Surveys conducted in rural areas should give greater attention to the personal interview and direct communication between the surveyor and the potential employers or students than is possible in urban investigations. Available data is usually less plentiful in smaller communities where there are fewer agencies and employers, and the general magnitude of economic activity too low to support extensive commitment of resources to information gathering. The relatively small number of employers also makes the interview type investigation more feasible than is possible in urban areas.

Budgeting

The proposal to conduct a survey should provide a complete listing of financial requirements. Precise estimates of the cost of a survey are difficult to determine. The number of variables for each individual case includes: the format and goals of the survey, availability of staff, procurement of reference documents, processing of data, expenditures for consultants, secretarial and clerical assistance, hospitality, communication, publications, travel, and meetings. These are among the more obvious expenditures affecting the total budget.

Relating the estimated expenditures to the benefits that will result should be an underlying consideration in developing a budget. Many occupational programs require high instructional costs and expensive instructional resources and laboratory equipment that may cost many thousands of dollars. An expenditure to verify the demands for occupational programs before a scheme is actually devised is more than justified. The dynamic nature of technology and the mobility of manpower requires that two-year colleges conduct periodic evaluation to determine whether course changes are desirable, or if overall manpower requirements reflect a need for expansion or retrenchment of occupational programs. Budget allocations for surveying activities may be required on a regular basis

(3:10-15). In fact, several community colleges budget research and development funds to evaluate ongoing programs in addition to surveying needs prior to initiating new ones.

Staffing Criteria

Staffing patterns for conducting a specific survey will vary according to the type of investigation to be completed and the competence and experience of regular personnel. Investigations for programs new to an institution, or for new institutions attempting to determine their most appropriate offerings, may be the more difficult varieties of surveys to staff. In these cases, there are less apt to be persons on the college staff with appropriate experience to guide the study. We have a plethora of examples. Many campuses have a well-established nurses training program at the associate degree level. There would undoubtedly be faculty and administrators with appropriate experience to conduct inquiries to determine the need for a retraining program. Such a program could bring graduate nurses back to active practice after a period of inactivity.

Once the staff responsible for designing and conducting the survey have been identified, they need:

1. Open access to data
2. The authority required to carry out all factors of the study as defined in the approved survey plan
3. Adequate time without excessive responsibilities for other teaching or administrative tasks
4. Supporting budget as defined in the approved survey plan
5. Opportunity for communication with faculty, advisory committees, and other community leaders that could best be arranged by the top-level administration of the college.

Collection of Data

There are many variations available to investigators who actually collect the information for a survey. The most basic approach is to distribute the questionnaire directly to the source of data or to a particular target group. Whenever possible, a personal meeting or telephone contact with the respondent will provide a valuable opportunity for discussion of the survey's objectives and an explanation of the college's programs. More accurate data, a higher percentage of response, and the opportunity to improve college-industry relationships are among the benefits investigators can expect from direct communication.

In some cases, it may be valuable to have an advance mailing of the questionnaire, accompanied by written instructions whereby the investigator asks for a commitment to subsequent interviews allowing for discussion of the tentative answers to the questionnaire. This procedure is usually quite productive for inquiries that are directed to potential industrial employers and provides an element of "insistence" to complete the questionnaire.

The questionnaire may also be directed to persons with specific knowledge of the target group or the intelligence being sought. This provides verification of information obtained from other sources and will also expand the data base for a specific type of information. For example, evaluation of student interest in various occupational programs by surveys of parents, high school administrators, or classroom teachers, provides a validation check on the answers from student groups.

When it is necessary to seek responses from executives or other persons whose time schedules make it unlikely that a regular questionnaire could be utilized, an open interview or structured interview, following a common set of questions for each respondent, may prove to be

Processing Data

The procedure to be followed in processing the data should be defined early in the study and, wherever practical, included in the formal survey plan. The basic design of the questionnaire will be determined by the data processing approach. Unnecessary expense will be incurred if the processing procedures are changed once the raw data has been collected. The anticipated and future correlations possible from the survey data will be enhanced if an automated processing method is used (3:153-168).

Random Sampling

Because all potential respondents will not be reached for questioning, it is important that the selected sampling be large enough to insure reasonable accuracy. It is also important that the sample include typical representation for the target population. Backstrom and Hursh cover this topic in some detail (3:23-35).

an effective technique. Competent interviewers are essential in these cases (3:135-142).

To improve the percentage of response and to increase the conscientious attitude of those completing the questionnaire, use of special appeals may be effective.

These might include: expansion of the overall value of the study to the college's programs; identification of influential firms, agencies, or individuals that are directly concerned with the investigation; or providing incentives. For instance, surveys directed to parents might offer a lottery of scholarships to the college, with the completed questionnaire used as the basis for a draw.

Several secondary benefits to the overall planning for occupational education may result from including a personal contact with the respondents during the study period. The consultation may identify emerging manpower needs or reveal that individuals currently employed require retraining or specialized programs that will enhance their knowledge and skills. Further information about training programs provided by employers which would be difficult to identify by questionnaires can be gathered from personal liaisons.

It may be possible for the college to help employers improve their company-employee relations by providing special programs leading to certification or some form of legal recognition of training provided. The status of employees may be enhanced by this or other programs showing recognition of their achievement level.

The examination of manpower needs for occupations requiring licensure presents special problems. Many occupations, particularly in the health field, require licensing by various boards or agencies at the state and national levels. Surveys directed to the development of these programs should include responses from representatives of all license-granting agencies.

In areas where apprenticeship is required before journeyman status can be obtained planning for educational programs should not produce a greater number of apprentices than can be accepted by the craft group. Additional information covering the details of actually collecting the data are included in Backstrom and Hursh (3:129-152).

3 MANPOWER REQUIREMENT STUDIES

13-14

Programs of occupational education enjoy the greatest success when graduates have the opportunity for initial placement and for continuing advancement during their employment. While surveys may with reasonable accuracy determine present manpower needs, estimating future demand is more difficult and involves many unpredictable variables (5:203-259). In technical fields supporting the production of consumer goods or military orders, there can be a rapid reversal in the call for trained personnel with even minor changes in the level of the economy. In the human or personal services, there is less fluctuation in manpower needs when the overall level of the economy changes, so demands are more predictable.

Another complicating factor in comprehensive planning is the tendency for enrollments to rise during periods of softening in the employment market. When this happens the college may be faced with a large student demand for its programs at a time when corresponding employment opportunities are decreasing.

Program planners can benefit from the services of public agencies, the views of local employers, and other sources of economic forecasting; but in the final analysis, some objective judgment is normally required. Below is a list of the major sources of employment projections which may be of value in analyzing the total placement opportunity for graduates of proposed new programs. This type of information represents a convenient starting point for the local planner. These references show national trends of employer demands in particular occupational specialities. To the extent that the local situation will be influenced by national trends, they will be valuable. Usually local conditions will not be directly responsive to national trends and it will be necessary to extend study efforts beyond the national forecast.

References for Employment Projections

The major source of occupational employment projections is the U.S. Department of Labor's Bureau of Labor Statistics (BLS). The BLS has been providing information on job opportunities through its *Occupational Outlook Handbook* since 1949. More recently, the BLS introduced a publication covering national occupational employment projections that was designed for use by state and local analysts. It is entitled *Meeting Tomorrow's Manpower Needs* (Volume 4, 1969).

The *Occupational Outlook Handbook* is one of the most frequently used references for information of this type and covers more than 700 occupations. Included are approximately 90 per cent of the job titles for professional and related workers, nearly 50 per cent for clerical workers, 90 per cent of sales worker titles, and 40 per cent of the service workers. It includes something less than 40 per cent of the remaining occupational classifications. The *Outlook* is published every two years. Supplemental information is provided during the intervening period through the *Occupational Outlook Quarterly.*

The *Directory of Occupational Titles* is used to identify each occupational listing. This handbook provides information on the employment outlook for the next ten years, the job description, sources of employment, estimates of earnings, working conditions, training and other qualifications required, for each published occupation.

Another reference for occupational education planners is *Tomorrow's Manpower Needs.* It provides data that state and local agencies can use to develop their own projections. There are three volumes covering employment by occupation and by industry at the national level.

A fourth volume, *Developing Area Manpower Projections,* discusses methods that local ana-

lysts can use to adjust national values to local conditions. To date, only one edition (four volumes) has been published. The information provided was based on the 1960 census of population, supplemented by current information from a variety of sources. A new edition based on the 1970 census, can be expected in the near future.

Additional information on manpower trends is available through state employment services. These agencies have information on unfilled jobs that can be compared with data from the *Occupational Outlook* to predict local job opportunities. State agencies occasionally conduct special surveys of employers to estimate their future requirements; these will be an excellent reference for local employment conditions.

Adapting National Projections to Local Conditions

Many of the projections discussed above involve a geographic area larger than the one a community college's occupational program can reasonably expect to satisfy. Some method must be found to scale down the available estimate to more closely match local conditions. National projections, such as those provided by the Department of Labor, have to be analyzed in terms of both state and local requirements. Specific methods for making these adjustments are contained in *Meeting Tomorrow's Manpower Needs.* This publication emphasizes the fact that there is no single best technique for making the adjustment from national to local values. It identifies a variety of forms that may be applied, pointing out the advantages and disadvantages of each. The surveying staff will find the advice of local manpower experts invaluable in determining which of the available methods to use.

Recognition of possible divergences between the basic assumption of national projections and the local conditions is imperative. This is particularly true with patterns of industrial development and population change. There may be significant differences between local concentration of employment in a relatively small number of industries or types of industry, and the trends of extensive industrial development at the national level. The establishment of a single new plant in a small community may have far greater impact on the local labor market than extensive new investment would have on national employment patterns. Reference to Volume 4 of *Meeting Tomorrow's Manpower Needs* will provide occupational implications of local concentration of employment in a small number of industries. This information, showing differences in occupational profiles among industries at the national level, compared with information on the extent to which local occupational profiles for a given industry conform to the national pattern, can help identify the significance of the local industrial "mix." Similarly, the information provided by *Meeting Tomorrow's Manpower Needs* can be combined with information on new industry available from local development groups to determine the manpower implications as they relate to new investments in the area.

For data related to the population, major concern must be directed toward migration although differences between local and national birth and death rates can be important factors in developing educational programs. Information on both topics is available from the U. S. Bureau of Census, *Current Population Reports: Series P-25.*

In view of the inherent difficulties in using national projections to estimate local demand and supply, it is tempting to disregard them and go directly to surveys. But wherever possible this should be avoided, because national

employment projections serve as a check on the results of local employer surveys. The value of local surveys is diminished by the fact that the employers do not use a common set of assumptions regarding the future course of business activity. Furthermore, the employers contacted by the survey cannot predict the response of the firms that will locate in the area in the future. The experience of the U. S. Department of Labor has revealed a tendency for employers to be inaccurate in their assessments of future needs. The surveys of local employers and other groups familiar with local conditions will provide an essential check on the conclusions drawn from national projections. Discrepancies between local demand and national projections become apparent by review of data from both sources.

Surveying Local Employers

The nature of the contact with local employers will depend on the basic survey objectives and the ultimate placement of the college's students, as well as other public relations factors. In urban areas it may be more difficult to maintain a sensitivity to these relationships. The vast sprawl of urban environments usually requires that a college repeatedly reassert its own identity to prevent anonymity. In an area where several community colleges have been established, research investigators and program developers must articulate their institution's objectives beyond the single questionnaire in order to establish appropriate working relationships with employers.

Procedures for establishing regional planning or cooperative development of educational programs will usually be beneficial to employers and the college. Large concentrated populations experience shifts in job opportunities, and include under-educated and frequently urbanized, job-seeking Black workers and other non-White minorities. Educational programs aimed at satisfying the needs of these groups must give special attention to obtaining reasonable guarantees for employment, rather than simply identifying gross figures of job opportunities. The factors of discrimination must also be analyzed closely if these conditions are evident.

When contacting local employers, investigators should be prepared to explain the educational philosophy and the objectives of the college. They may also anticipate uncovering latent manpower needs that the employer had stopped considering because training capability, now available from the college, was previously lacking.

Here is an illustrative story. The writer's experience in conducting a survey for a rural community college included discussion of providing a special short-term program through the Division of Continuing Education that resulted in frequent and insistent calls from one of the employers surveyed to implement a particular course he considered desirable for the employees of his company. This request was advanced, even though it was clearly stated that I was serving as a consultant to the college, and that at this point, the basic objective was to determine evidence of need, and that program introductions typically required advanced planning and budgeting. It ultimately required the personal attention of the chief administrative officer of the college and a board member to clarify the issue.

Inquiries to employers should be sensitive to the possibility that many training programs may be required for employed persons or under-employed groups without a comparable need by full-time students. It should be remembered that shop foremen typically view manpower needs from a different vantage point than will management. Despite the convictions

of either group, the actual hiring of employees will be dictated by the economic conditions at the time that job placement is required.

Following is a listing of questions or areas of inquiry that can be directed toward employers to measure the need for occupational programs (5:439-445).

- ☐ Data to develop a profile of the existing work force
- ☐ Quantitative data on current and potential manpower needs for:
  a. Existing vacancies
  b. Annual replacements from attrition, death, retirement
  c. Expansion and long-range development
  d. Emerging occupations
- ☐ Identification of critical shortages (continuous recruitment problems)
- ☐ Salary levels for various job classifications
- ☐ Interest in hiring associate degree graduates to fill manpower requirements
- ☐ Needs for retraining of existing work force
- ☐ Determining knowledge and perceptions of the college and its programs
- ☐ Verification of technical program content required by employers
- ☐ Data on the occupational training offered or planned by employers
- ☐ Extent of financial support for employee education
- ☐ Evaluation of graduates
- ☐ Ability of existing occupational programs to satisfy job requirements.

To assure that all potential sources of data have been considered, the final compilation of those to be contacted by a given survey should be reviewed by everyone involved in the project.

4 DETERMINING ENROLLMENT POTENTIALS

18-19

The changing and diverse goals, interests, and career objectives of potential students, combined with an expanding range of abilities necessitate initial and ongoing surveys to accurately evaluate enrollment potential in the overall planning process for occupational education.

Source Groups for Information

The major source groups for data relating to student demand for occupational programs are parents, high school staff and faculty, and the potential students themselves, including recent high school graduates, employed workers, unemployed, under-employed, and mobility-bound persons. Most administrators, counseling and guidance staff and faculty from the high schools within the general service area of community colleges will be willing to assist and are genuinely interested in contributing to the planning for appropriate educational programs for the citizen-students in their area. Many will be cognizant of the problems facing the two-year colleges who offer comprehensive programs, and will be in a position to provide data on student interest and other information helpful to planning.

Certain types of statistical data will be more readily available from high school sources than from any other. They would include:

- Quantitative data on the numbers leaving high school, both with diplomas and without
- Other enrollment statistics and projections
- Data on programs entered by graduates in previous years, perhaps at other institutions
- Various statistics (both actual and projected) on where the high school graduates are entering higher education, including total percentage seeking higher education, percentage to four-year colleges, to two-year colleges, to career programs, to university parallel programs, and total percentage who attend the local community college
- Actual and projected data on the scholastic ability of students
- Statistics on the non-college bound, including questions relating to why they are not planning to attend postsecondary education, quantitative information, and questions relating to socioeconomic factors that may be involved
- Identification of specific occupational programs needed with supporting justification and possibly priority ratings.

The high school staff are also in a position to provide investigators with valuable suggestions on procedures to follow in conducting surveys that relate to their students. Frequently they can identify groups or specific individuals who should have access to the data sought or knowledge of overlapping studies already completed. This group can also provide help with the distribution of questionnaires to students or the general procedures required to complete the investigation.

Questions relating to general information and personal evaluation may also be directed to them. They would include: evaluation of student perceptions of occupational education covering such employment factors as duties, responsibilities, salary, and advancement potential for individuals completing associate degree or other typical non-degree postsecondary occupational programs. The preference of students for employment in the local area and whether or not the student would prefer a community or residential college experience may also be evaluated by this group. When

personal interviews are possible, a general discussion of ways for improving occupational education opportunity in the region may also be productive.

Surveying Potential Students

Student surveys may be utilized to determine the needs for postsecondary occupational training or to justify the introduction of proposed curricula. A note of caution should be extended, however: many surveys designed to measure student interest may do little more than complete an interest inventory. For example, if the survey includes questions that identify several fields of occupational specialization and the students are instructed to check their preference, they are apt to select the one that has personal appeal or sounds glamorous. This procedure may identify interest but the ultimate decision to seek admission to such a program is quite a different matter. Still, general predictions of major interests may be of considerable value to overall planning, and potential students in both the high school and adult population groups should be contacted.

Surveys directed to students still in high school can be conducted with relative ease. Specific information about the number, status, and the location of these students is readily available. Communication is much more difficult with adult students who are currently employed and need additional training or retraining, and for those in the ranks of the unemployed, under-employed, and mobility-bound categories whose opportunity for meaningful employment would be expanded by attending college. Agencies administering poverty programs, public welfare, correction, employment, or similar public services should be contacted to determine the potential sources of data and suggestions on effective ways of distributing questionnaires to the target group. The PREP program (Putting Research into Educational Practice), handled by the U.S. Office of Education, is a recently established service providing analysis and interpretation of research on educational problems. PREP publications are available through state agencies and through the ERIC Clearinghouse.

Those who have been accepted at the two-year college sponsoring the investigation may provide valuable information for occupational program planning. Questions exploring why the respondent selected the college—convenience of location, financial considerations, reputation of the faculty, or other facts relating to the choice—may be revealing. Other questions could include: Were applications to other colleges made? Was the program of first choice available? Was the two-year or four-year college preferable? Was there a specific interest in career programs or in university parallel coursework? How were employment opportunities for technical graduates viewed?

More specific inquiries can be directed to both the general high school population and potential adult students. A partial listing of the data that may be sought follows.

- Determine program interest
- Institutional preference
- Student perceptions of occupational education
- Student perceptions of employment opportunities for associate and short-term programs in occupational fields, including duties, responsibilities, salary, and the potential for advancement
- Preferences for attending a local college, a distant college
- Are they willing to participate in a training program at the community college level?

Parents may provide validation of the information received from the students themselves, and

from the high school staff. The financial ability of parents to support postsecondary education for their children, the type and location of institutions they prefer, and the type and level of program they feel appropriate for their children are useful supportive data.

The caution noted in the section "Surveys of Local Employers," relating to the need for descriptive materials of occupational programs, is equally appropriate for these data source groups. Investigators should remember that the general population is usually less informed about the types and range of occupational programs available in a comprehensive community college than they are apt to assume.

Many two-year colleges have found that the total potential of women for filling occupational job titles is greater than they anticipated. A specific example of this unexpected increase in female enrollment took place in a West Coast community college. When the college instituted a child care center, a large number of women who had felt they were trapped by their pre-school-aged children, enrolled in a variety of programs. Special coursework designed for women wishing to return to the job market after completing the responsibilities of raising a young family, has been highly successful. Other circumstances may require different programs to meet the needs of women who have completed a general education or who failed to complete formal education but wish to prepare for employment.

Determining student interest in urban, low-income communities will require innovation and planning, since existing traditional instruments and designs were developed with middle class students in mind and are largely inappropriate.

The measurement of enrollment potential is crucial to the college's effort to relate student characteristics, educational objectives, and institutional resources to known employment opportunities. Invariably, the technical educator will have at least one illustrative lesson or story about the program that his college developed in response to manpower needs where there was strong employer support, competent faculty hired, expensive laboratories equipped, and only then was it determined that students were simply not interested in enrolling. The problems of student recruitment will continue to plague those responsible for developing successful programs; studies to determine initial interest and to provide ongoing evaluation can provide invaluable assistance.

Uses of Sociological Data

The educational planner responsible for relating his objectives to manpower projections and institutional resources must realize that job vacancies are predicated on probable expectations of the motivations, skills, behavior, and performance of job applicants. Many of these characteristics are shaped by the social and physical environment of the communities in which students live. Consequently, pre-design considerations for this data should include attention to transportation, health care, housing, recreation, educational facilities, and other environmental conditions. The monitoring of all these factors represents a monumental task and effective surveys will typically be required.

Data relating to rural decline, urbanization, and population migration characterize the sociological and demographic variables that should be analyzed. Two of the most prominent sources of sociological data are the current population survey and the *Small Data Activity Newsletter,* a publication of the Bureau of the Census. The U. S. Department of Labor and the Bureau of Labor Statistics have begun several new research and data programs providing information for local urban poverty areas (11).

Investigators might also contact centers of higher education which frequently have faculty, or special departments accumulating large amounts of sociological data for the immediate area surrounding their campus.

Sifting through this extensive data to identify the specific information of value to the community directly under study is laborious. Analytical assistance is usually available directly from many of the agencies providing the information and is recommended. Other insightful and valuable interpretations of sociological data can be obtained from individual community leaders or organizations in the target area, from various social service agencies, and other professionals long associated with the service area of the community college. Making use of these sources is particularly important for inner city areas with non-White and Black minority residents. Second-hand information sources external to these communities have often been inaccurate.

Those planning vocational education in urban poverty areas should be sensitive to the impact that new programs could have upon the community's economy. For instance, the initiation of cosmetology program where the college allows the students to obtain services at lower than usual cost may materially affect the stability of locally owned businesses in the area of the college. Creating adverse aftereffects on the smaller businesses of a community in the interest of satisfying students, or under pressure from major employers, should be avoided.

The possibility of implementing high cost occupational programs that fail or are only marginally successful because of the limited student demand will be reduced if the occupational education planners develop a sophisticated understanding of the cultural patterns and life style characterizing residents of the community. Reference to the U.S. Office of Education's PREP series, Report 10, may be of value. (12:1-24).

5 FEEDBACK: WHAT NOW?

23-24

Probably supporting statistics are unavailable but there are many reasons to predict that the greatest disappointment in conducting a properly designed and conducted survey is to ultimately find that the outcomes were only used partially, or perhaps not all. In many cases, the formal survey proposal may not have clearly stated what the expectations were for utilization of the results. It is important to consider what purposes the survey will serve as the original design evolves.

Sometimes the information gathered or the discussions inherent in conducting the survey will prompt colleges to move ahead with the implementation of the program under study prior to actually completing the information gathering and final analysis of results. This may be justifiable in some cases, but the old adage of "counting your chickens before the eggs have hatched" can become painful reality when this practice is followed in planning for occupational education.

Unless the survey results and conclusions are actively discussed by those concerned with the overall operation of the college, much of the value of the effort may be wasted. Presenting the information to a variety of individuals will result in an assortment of reactions and conclusions because of the differing points of view, previous experiences, and the basic outlooks among people. This observation applies directly to the results of a survey.

Maximum utilization of feedback can be had by using the final report as the basis for a seminar among the faculty, administration, advisory committee members, and potential employers who are directly concerned with the occupational program under study. This common review of the survey results provides an opportunity to reach conclusions about whether initial programs should be launched, and whether or not modifications to existing curriculums are implied. More effective ways of recruiting new students can be identified, and new placement opportunities for occupational education graduates may be opened up. The seminar can provide faculty with suggestions for improving instruction, as well as a variety of fringe benefits that may not have been included as specific objectives of the original investigation.

Backstrom and Hursh's section on processing data includes many suggestions on procedures to follow after completing a study (3:151-171). One observation the authors emphasize on the subject of reporting seems most appropriate: "Report only what you find and not what you want the data to show. Describe your findings carefully just for what they are, with no grandiose titles or extrapolations to unwarranted conclusions, except as hypotheses for further testing. Report your methods along with your conclusions. Report, also, what you did not find and what findings were not significant along with the significant ones" (3:170). Unless investigators show complete integrity and openly admit the survey results were actually negative, the most valid conclusions for occupational planning may be missed.

With the extensive number of students seeking higher education in urban areas, the analysis of survey results for metropolitan community colleges should stress determining whether persons completing the program of occupational training will actually find jobs available. For smaller community colleges where the total number of persons seeking higher education may be limited and perhaps too low for the campus to even provide comprehensive programming, verifying the fact that sufficient student interest exists to provide adequate enrollment, may be the most important factor (6:17-20).

The questions answered in a survey provide data which is typically converted into numbers

for further quantitative analysis. The tabulation of the results should provide the investigators with an opportunity to make statements or draw conclusions regarding the original objectives of the study. Proper analysis of these conclusions will lead to recommendations for action concerning the operation of occupational programs at the college conducting the study. The formulation of these recommendations will, of necessity, require extensive subjective judgment based on total information obtained.

Another "cause and effect" action that may be taken after a given survey has identified new occupational programs that seem justified can be implemented in cooperation with the area high schools. With the rapid development that has been common in establishing many comprehensive community colleges, occupational curricula have been introduced with little lead time prior to the admittance of the first class. When response to this action to provide is acknowledged with only marginal enrollment, there has been a tendency for technical educators to condemn the high school counselor for not having informed his students of this great new opportunity. However, high school students, whether justifiably or not, tend to follow programs of study throughout their high school careers that will qualify them for certain types of postsecondary experiences. If fresh occupational program introductions were planned with considerable lead time, and in direct cooperation with the high schools in the college area, potential students could be advised at an early date and move through their high school experience with reasonable commitment to a program and utlimately seek admission. Providing the proper prerequisites during the pre-planned high school experiences will also increase the opportunity for success in the two-year college program. The college will also posess adequate time to secure competent faculty, instructional and laboratory resources, and money.

Follow-up

Persons responsible for two-year college occupational education should take positive steps to monitor data to measure the effectiveness of career programs. The changes needed in existing programs, or the demand for new offerings, will thereby be detected. Coordination between the staff of the college's placement office and the faculty for career programs will result in a well-developed plan for continuous evaluation of manpower needs. This cooperative effort could take the form of working directly with the occupational program students while they are still at the college in order to stress the importance of providing feedback; having the students actually involved with identifying the procedures that they would be willing to follow; and instilling ideas on the variety of feedback information that would be of value. Feedback from graduates of the college's training programs will provide information on: the adequacy of the training for the job requirements, specific suggestions for changes that would strengthen the program, the successes of graduates, and an indication of the advancement that has been open to them as a result of their training experience. Suggestions for new programs or courses to provide in-service training or retraining can be requested.

The relationships developed during the survey may provide an opportunity for regular visits to employers and potential employers that will allow detection of emerging changes in manpower needs at an early date. Discussion with those actually supervising graduates of the college will also provide an evaluation of the quality of the graduates and the adequacy of the program.

REFERENCES

1. *A System for State Evaluation of Vocational Education, Series 45.* The Center for Vocational Technical Education; Ohio State University, August 1969.
2. *The Role of the Advisory Committee in Occupational Education in the Junior College.* By Albert J. Riendeau. AAJC. 1967.
3. *Survey Research.* By Charles H. Backstrom and Gerald D. Hursh. Northwestern University Press. 1963.
4. *On Using and Being a Consultant.* AAJC. 1967.
5. *Vocational, Technical, and Continued Education in Pennsylvania—A Systems Approach to State-Local Program Planning.* Department of Public Instruction and the Pennsylvania State Board of Education. 1969.
6. *100,000 and Under—Occupational Education in the Rural Community Junior College.* By George L. Hall. AAJC. 1968.
7. *Occupational Job Requirements: A Short-Cut Approach to Long-Range Forecasting.* By Norman Medvin. Reprinted from *Employment Service Review,* January-February, 1967. U. S. Department of Labor.
8. PREP Series. U. S. Office of Education. National Center for Educational Communication.
9. *Tomorrow's Manpower Needs.* Department of Labor, Bureau of Labor Statistics. Volume 4; 1969.
10. *Current Population Reports,* Series P-25. Bureau of the Census.
11. "New Statistical Barometers of Poverty." By Howard V. Stambler. *Occupational Outlook Quarterly,* Volume 13, Number 1; p. 1-3.

GENERAL BIBLIOGRAPHY

A Fact Book on Higher Education Enrollment Data. By the American Council on Education. July 1970.

Guidelines and Procedures for Establishing Vocational and Technical Education. Seattle Community College.

The Importance of Relevance in Expanding Post-Secondary Education. By Warren W. Willingham. Access Research Office, College Entrance Examination Board, Palo Alto, California 94304.

Junior College Institutional Research. By John E. Roueche and John R. Boggs. AAJC. 1968. $2.00.

Manpower Information for Vocational Education Planning: A Conference Report. The Center for Vocational and Technical Education, Ohio State University, Columbus, Ohio. November 1969.

Manpower Report of the President. U. S. Department of Labor. January 1969.

Research Approaches to the Initiation of New Vocational-Technical Programs. Center for Studies in Vocational and Technical Education. Report of a conference in Madison, Wisconsin, October 3-7, 1966. The University of Wisconsin.

Statistics on Manpower. U. S. Department of Labor. March 1969.

A Systems Approach to Vocational-Technical Education Planning at the Local Level. By Cleveland L. Dennard. March 26, 1969. A paper presented to the National Conference on Methods and Strategies for State Plan Development.

A Study, State Master Plans. By A. S. Hurburt. AAJC. 1969. $2.00.

Vocational Education Program Planning at the State Level. By Walter M. Arnold. March 27, 1969. pp. 16-20.

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